TABLE 39. IMPACT OF INTERINDUSTRY SHIFTS IN HOURS WORKED ON PRODUCTIVITY GROWTH

	1949-1965	1966-1973	1974-1978
Average Annual Increase in Productivity (percent)	3.308	2.198	1.214
Percentage Points due to Interindustry Shifts	0.474	0.301	0.151
Agriculture, Forestry, and Fisheries	0.287	0.124	0.044
Mining	-0.029	-0.015	0.040
Construction	0.006	-0.003	-0.001
Nondurable Goods Manufacturing	0.002	0.006	-0.002
Durable Goods Manufacturing	0.014	0.008	0.003
Transportation	-0.005	-0.002	-0.004
Communications	0.001	0.019	-0.011
Electric, Gas, and Sanitary Services	0.002	0.009	-0.012
Wholesale Trade	0.013	0.014	0.033
Retail Trade	-0.013	0.002	0.014
Finance, Insurance, and Real Estate	0.255	0.220	0.160
Services	-0.059	-0.077	-0.113

SOURCE: Congressional Budget Office calculations based on data from the Commerce Department and the Bureau of Labor Statistics.

NOTES: All values are expressed as average annual rates. Columns may not add to totals because of rounding.

The change in average productivity in period t can be expressed as:

$$\Delta P_t^A = \sum_i (P_{t-1}^i - P_{t-1}^A)(w_t^i - w_{t-1}^i) + \sum_i (P_t^i - P_{t-1}^i)w_{t-1}^i + \sum_i (P_t^i - P_{t-1}^i)(w_t^i - w_{t-1}^i)$$

where

P^A = average value added per hour,
P^i = value added per hour in the i^{th} industry, and
w^i = the share of total hours worked in the i^{th} industry.

The overall percentage point change in productivity growth due to interindustry movements of labor was calculated by dividing the first term by P_{t-1}^A, or

$$\sum_i (P_{t-1}^i / P_{t-1}^A)(w_t^i - w_{t-1}^i) \quad .$$

For each subperiod, the net effect of changes in the share of hours worked in the i^{th} industry was calculated as:

$$\sum_t (P_{t-1}^i - P_{t-1}^A)(w_t^i - w_{t-1}^i)/P_{t-1}^A) \quad .$$

TABLE 40. IMPACT OF INTERINDUSTRY SHIFTS IN HOURS WORKED WITHIN MANUFACTURING ON PRODUCTIVITY GROWTH

	1949-1965	1966-1973	1974-1978
Average Annual Increase in Productivity (percent)	2.952	2.628	1.700
Percentage Points due to Interindustry Shifts	0.017	-0.025	0.203
Food and kindred products	0.005	-0.002	-0.019
Tobacco	-0.022	-0.025	-0.043
Textile mill products	0.111	0.003	0.064
Apparel and other textile products	0.005	0.028	0.035
Lumber and wood products	0.038	0.001	0.009
Furniture and fixtures	-0.002	-0.008	0.006
Paper and allied products	-0.001	-0.001	0.000
Printing and publishing	0.004	0.002	-0.002
Chemicals and allied products	0.000	0.001	0.041
Petroleum and coal products	-0.034	-0.009	0.048
Rubber products	-0.001	-0.006	0.000
Leather and leather products	0.015	0.027	0.020
Stone, glass, and clay products	0.000	-0.001	0.001
Primary metals	-0.046	-0.025	0.014
Fabricated metals	0.001	-0.005	0.006
Machinery, except electrical	0.000	0.003	0.000
Electrical equipment and supplies	-0.040	-0.010	-0.001
Motor vehicles	-0.018	0.004	0.028
Transportation equipment, except motor vehicles	-0.003	-0.006	-0.001
Instruments and related products	-0.003	-0.001	-0.003
Miscellaneous manufacturing industries	0.008	0.005	0.000

SOURCE: Congressional Budget Office calculations based on data from the Commerce Department and the Bureau of Labor Statistics.

NOTES: See notes from Table 39.

apparel, and a rise in the share of hours worked in the chemical and petroleum industries.

The estimates in Tables 39 and 40 indicate that the productivity impact of interindustry shifts of labor can be significant, and that policies to encourage the growth of high-productivity industries may be worth considering by U.S. policymakers. 3/ This source of productivity growth has been tapped by other nations.

AN INTERNATIONAL COMPARISON OF INDUSTRIAL POLICIES

Interest in the formulation of an industrial policy for the United States is largely attributable to the successful use of structural policies in countries such as Japan, France, and West Germany. An industrial policy is not always the solution to the problem of poor economic performance, however, as witnessed by the United Kingdom. In assessing the desirability and potential effectiveness of an industrial policy in the United States, a review of foreign experience seems relevant.

Japan

Japan is the prime example of the use of structural economic policies to stimulate productivity growth. 4/ In the early stages

---

3/ The policy implications of past interindustry movements of labor are discussed in Thurow, "The U.S. Productivity Problem"; and Arnold H. Packer and Brian P. Brosnahan, "The Productivity Puzzle, or the Hounds That Didn't Bark," U.S. Department of Labor, Office of Macroeconomics and Economic Policy Review (November 15, 1979).

4/ Discussions of Japanese industrial policy are presented in Organization for Economic Cooperation and Development, The Industrial Policy of Japan (1972); Shinichi Ichimura "Japanese Industrial Restructuring Policies: 1945-1979" (paper presented at the Symposium on World Development and Restructuring of Industrial Economies, Varenna/Bellagio, Italy, September 10-16, 1979; processed); OECD, The Aims and Instruments of Industrial Policy: A Comparative Study (1975); and Ministry of International Trade and Industry, The Vision of MITI Policies in the 1980s (Tokyo, March 1980).

of postwar reconstruction, the Japanese recognized that major changes in their industrial mix would be needed to achieve a high level of prosperity and a satisfactory balance of trade. Because of its situation as a resource-poor, densely populated nation, Japan's comparative advantage in world production at that time was in labor-intensive, low-productivity industries. A decision was made to alter this comparative advantage by actively encouraging the growth of capital-intensive and high-technology industries highly responsive to rising consumer incomes, rapid technical progress, and fast-rising labor productivity. Over time, the list of favored industries has changed as Japan has progressed through its "product cycle." Initially, attention was focused on industries such as shipbuilding, steel, fertilizer, and power generation. As the economy grew and developed, resources were directed toward the production of chemicals, petrochemicals, autos, and computers. The agenda for the 1980s includes efforts to develop new technologies in areas such as energy, medicine, and large information systems.

Government and business have participated jointly in the formulation of Japanese industrial policy. The guiding force in this process has been the Ministry of International Trade and Industry (MITI). The role of MITI essentially is one of persuading, facilitating, and encouraging industry to move in the desired directions. Its success is said to owe much to a spirit of cooperation between business and government--viewed as "two wheels of a cart"--and to the willingness of Japanese workers to accept the necessary changes. The cooperation of labor may stem from the job security provided many workers by the lifetime employment tradition in Japan, which essentially guarantees that a worker who performs satisfactorily will be employed until retirement age.

Tax incentives such as accelerated depreciation have been used to encourage and facilitate industrial adjustments, but these seem to have played a relatively minor role compared with credit allocation by the government and the banks. Because of an underdeveloped financial market, Japanese firms have relied primarily on bank loans to meet their external financing needs, and the government has exercised considerable influence on the allocation of such loans. Finally, export and import policies have helped new industries to develop and some others to adjust to foreign competition and changes in world demands; antitrust policies have permitted large mergers that would produce economies of scale.

France

Since 1946, the French economy has operated under a series of five-year "indicative plans," developed by the General Planning Commission with the cooperation of all public and private organizations concerned. 5/ While agreement on explicit goals has not always been achieved, the sectoral group consultation process has served as a forum for communication among business, labor, and government representatives.

During the 1950s and 1960s, French industrial policy sought to rebuild and modernize industry, and to develop prestigious national firms that could compete successfully in world markets. The government used a varied and extensive set of tools to affect or make industrial decisions. These included the erection of protective trade barriers, encouragement of mergers, creation of public investment corporations, subsidies and tax concessions, credit market intervention, and price controls. It also nationalized a number of industries such as utilities, banking, coal mining, and motor-vehicle manufacturing. These various policy measures were consistent with the concept of dirigisme--the idea that substantial centralized direction of the economy is desirable.

Under the leadership of President Giscard D'Estaing, France has been relying more on market signals than on consensus-building among government, business, and labor to indicate the direction in which capital and labor resources should go. In recent years, the government has dismantled price controls and has tightened competitive measures within sectors. Also, many more troubled firms have been allowed to go bankrupt in a display of the new policy of giving management responsibility back to enterprise.

Notwithstanding, France continues selectively to promote some industries. One difference from the past, however, is that the criterion for support is no longer the prestige of the industry but

---

5/ For a description of French industrial policies, see OECD, The Industrial Policy of France (1974); Lawrence G. Franko, European Industrial Policy: Past, Present, and Future (The Conference Board in Europe, February 1980); John Pinder, Takashi Hosomi, and William Diebold, Industrial Policy and the International Economy (Trilateral Commission, 1979); and James O. Goldsborough, "Giscard's New French Revolution: Capitalism," Fortune (April 9, 1979), pp. 67-74.

11-793 O - 82 - 7

the likelihood that it will soon become viable in international competition. Also, in contrast to the Gaullist insistence on purely French solutions, selected foreign companies have been invited to participate in government ventures as a way of achieving competitiveness and technological excellence. A third difference is that French policy is now less oriented toward particular industrial projects or direct involvement in particular firms, and more toward providing risk capital, support through government purchases, and stimulus to growing enterprises in the context of sectoral programs and objectives.

The success of French industrial policy may be due to the fact that the French have been willing to cut their losses when particular approaches were shown to be uneconomic. They have learned from their mistakes. French industrial policy has pragmatically tended to support, strengthen, salvage, and promote industry on a selective basis.

The Federal Republic of Germany

Germany was the first Western European country to follow the efforts of France and Japan to formulate industrial strategies consistent with macroeconomic goals, and to devise institutional means of obtaining a consensus among business, labor, and government about how to achieve them. 6/ It sought to develop a system that would allow an overall consideration of economic problems within a context of economic freedom and with an international outlook. The Stability and Growth Act of 1966 established a process that closely resembled the French sectoral interest group consultation process.

On the other hand, in contrast to the detailed administrative guidance provided to industry in Japan and until recently in France, the West German government has been less predisposed to intervene in the investment decisions of industries and firms. The main contribution of the public authorities has been to provide a stable economic environment. In the view of the West German

---

6/ The industrial policies of the Federal Republic of Germany are reviewed in Franko, European Industrial Policy: Past, Present, and Future. See also OECD, The Industrial Policies of 14 Member Countries (1971), pp. 9-48; and "The Reindustrialization of America," Business Week (June 30, 1980), pp. 139-40.

government, "industrial policy" is only a special aspect of its general economic policy aimed at maintaining full employment, economic growth, stable prices, and balanced foreign trade. In line with this view, Germany has pursued a strong anti-inflation macroeconomic policy that creates a climate of investor confidence, but leaves it to corporate management to decide where to invest.

For the most part, German subsidies have been targeted on the creation of new job opportunities rather than on maintaining existing firms. Guidelines established in the late 1960s required that subsidies be limited in time, involve private risk capital, and be as general as possible--that is, sector-focused rather than firm-focused.

At the beginning of the 1970s, a social consensus emerged that, if high wage rates and real incomes were to be maintained or further increased, there would have to be an increase in high-skill, knowledge-intensive production; low-skill, low-value-added production in which low-wage countries were developing a comparative advantage would have to be phased out.

The German government has intervened substantially in the creation and/or reorganization of advanced technology sectors, but care has been taken to leave the practical implementation of these programs to private industry. Germany is at the non-interventionist end of the industrial policy spectrum in Western Europe, with France at the other end.

The cooperative relationship between labor and management in Germany is an important institutional factor. Under the "codetermination" system, union representatives sit on corporate boards. More important, however, is the law that makes it illegal for worker representatives to operate against the company's best interests. German unions are notably more inclined than those of some other countries to support the adaptive aspects of industrial policy.

Another important factor is the network of close stable links between industrial companies and banks that encourage German companies to invest with an eye toward long-term growth. Bankers typically sit on company boards. The large private banks assume a risk-taking role that elsewhere is assumed by the government (for example, France) or not assumed at all (for example, the United States).

The United Kingdom

The British attempt to adopt an explicit set of industrial policies began in the mid-1960s, despite opposition by the Conservative Party, some segments of business, and many trade unions. 7/ Forty sectoral development committees (modeled on those in the French indicative planning process) were set up, as well as a government investment bank (the Industrial Reorganization Corporation). Equity capital and credit were provided to potential growth companies, and several mergers were arranged with the aim of achieving economies of scale and increased managerial efficiency.

But the British policies were limited in many ways. Sectoral targets were not set in the context of a plan or of general economic goals. British law, social policy, and macroeconomic policy did not mesh with the plans for strengthening industry, and were sometimes thoroughly inconsistent with them. Unions, managers, and civil servants seemed to share a job-protection mentality resistant to change.

British industrial policy measures in the 1970s were scattered across the whole spectrum of manufacturing. Insofar as the policy was targeted at all, it was on providing defensive assistance not only to declining sectors (such as clothing, steel, and shipbuilding), but to a broad range of middle-technology sectors. At least 40 industrial sectors were declared to be of critical importance by the National Economic Council. In effect, it attempted to salvage and protect nearly every ailing branch of industry, thus reinforcing the existing industrial structure rather than reshaping it along the lines of national comparative advantage.

The National Economic Council functioned through tripartite business-government-labor working parties, which seemed unwilling or unable to set sectoral priorities. The idea of a government role in picking the winners was not accepted, and the notion of letting

---

7/ Discussions of British industrial policy can be found in Lawrence G. Franko, European Industrial Policy: Past, Present, and Future; John Pinder, Takashi Hosomi, and William Diebold, Industrial Policy and the International Economy, pp. 33-35; OECD, The Aims and Instruments of Industrial Policy: A Comparative Study (1975); and "The Reindustrialization of America," Business Week (June 30, 1980), pp. 140-42.

the losers go seemed anathema. When the 40 working parties finally agreed on a set of goals, they called for increasing or stabilizing import protection in all 40 industries. Their concept of industrial strategy did not seem to require that certain activities be left to other nations, and the resources used in these activities shifted to more efficient British sectors.

Since the Conservative Party took power in 1979, the government has appeared to be backing away from industrial policies in favor of monetary stringency and free-market economics. It is putting more reliance on general measures such as a reduction in personal tax rates, removal of price and exchange rate controls, and cuts in public expenditures in its effort to stimulate the economy and help ailing industries. But it is only reducing, not eliminating, subsidies to shipbuilding and other hard-pressed industries.

The United States

In the United States, policies to alter the industrial structure have generally been deemed inappropriate. 8/ Private business has been relied upon to play the major role in charting the course of industrial development. The federal government's part has basically been to provide a sound and stable economic environment, mainly through steering the economy with fiscal and monetary policies.

Although the United States has not pursued policies explicitly intended to alter the industrial structure, many government actions have done so implicitly. Military contracts, for example, have fostered the development of defense-related industries such as aerospace, shipbuilding, metals, electronics, and computers. Agriculture has received federal assistance in such forms as price

---

8/ For reviews of U.S. industrial policy, see OECD, United States Industrial Policies (1970); and OECD, The Aims and Instruments of Industrial Policy: A Comparative Study (1975); "The Reindustrialization of America," Business Week (June 30, 1980), pp. 55-142; and "A Report on U.S. Industrial Policies" (speech by Jerry J. Jasinowski, Assistant Secretary for Policy, U.S. Department of Commerce, May 9, 1980; processed).

supports, crop insurance, disaster relief, and subsidized loans. The housing industry--both owner-occupied homes and rental dwellings--receives substantial federal aid, primarily in the form of tax benefits and interest subsidies to owners of housing. The health-care industry benefits from the income tax deduction for medical expenses and from programs to provide health care to the needy.

The government has also intervened in private markets to produce desired social or economic results. It takes antitrust actions aimed at maintaining competition. It regulates natural monopolies. It enforces social regulations in such areas as consumer protection, affirmative action, environmental quality, and health and safety. Finally, in the area of international trade, it has taken restrictive measures to protect employment in endangered domestic industries.

The United States has no agency that is the equivalent of Japan's MITI, or even France's General Planning Commission. The Department of Commerce--largely a research and information agency--is only one of many agencies engaged in activities that have major impacts on business. The diverse missions of these agencies, and the lack of a unifying framework, have made it difficult to coordinate government actions. This lack of coordination may at times have resulted in counterproductive policies.

In addition, some argue that there is relatively little cooperation among American business, labor, and government in the formulation of policy. In large part, this may be due to an atmosphere of distrust. The relationship between business and government is often adversarial in nature, as is the character of labor-management relations in the private sector.

INDUSTRIAL POLICY CONSIDERATIONS FOR THE UNITED STATES

A decision to raise productivity by fostering the growth of high-productivity industries would represent a major change in policy for the United States. An alternative policy would be to attempt to raise productivity by correcting or offsetting market distortions that result in resource misallocation.

The Economic Rationale for Government Intervention

In a competitive market economy with no market distortions, the price mechanism generally can be relied upon to allocate resources efficiently (that is, most productively) in a manner consistent with consumer preferences. Under those circumstances, government intervention to restructure industry would violate consumer preferences, and could be counterproductive. But when market forces fail to operate freely--when there are distortions in the product, labor, or financial markets--the price mechanism may not produce an efficient allocation of resources; then gains can be realized by government actions that restructure industry in a manner consistent with "undistorted" resource and product prices. This rationale for government action is applicable no matter what the cause of the market distortions--whether they reflect domestic market imperfections, whether they result from the industrial policies pursued by foreign nations, or whether they are the by-products of domestic government policies.

Thus, market distortions provide an economic rationale for corrective government intervention in private markets. But it is not always easy to determine whether economic difficulties are the result of market distortions or of the normal working of market forces. Failure to distinguish between the effects of market forces and the effects of market distortions can result in inappropriate policy actions. For example, providing aid to an ailing industry may be appropriate if the industry is the victim of market distortions, but not appropriate if the industry is declining simply because foreign production is more efficient. Moreover, it is important to identify the cause of market distortions in order to design effective policy responses. If the rate of return to capital in an industry is depressed because strong unions have negotiated wage gains that exceed productivity growth, providing financial aid may simply result in higher wage settlements instead of increased investment.

Selecting an Industrial Policy Strategy

Should policy be designed primarily to promote the growth of selected high-productivity industries, or should it be directed at correcting or offsetting structural distortions in the

marketplace? 9/ More specifically, should regulatory, tax, trade, procurement, and other policies that affect the structure and performance of industry be designed to shift resources from low to high value-added production, or should these policies be concerned instead with correcting or offsetting market distortions that affect the allocation of resources among industries?

Advocates of the industry-specific ("pick-the-winners") approach argue that, in many cases, current knowledge and politically acceptable policy tools are inadequate to deal effectively with market distortions that retard productivity growth. Moreover, they note that, while a competitive-market determination of resource allocation may be efficient, it fails to recognize that differences in the comparative advantage among nations in the production of low and high value-added products are subject to policy manipulation. Thus, they contend that, without policies designed to direct resources into high-productivity industries, the United States may continue to experience declining market shares in these industries compared with countries that actively pursue industry-specific growth policies.

Opponents of an industry-specific policy approach believe that the market mechanism, despite its imperfections, is superior to industrial planning in allocating resources efficiently and satisfying consumer demands. They often point to the United Kingdom as an example of the failure of extensive government involvement with industry. Another argument frequently made is that the free-enterprise institutional framework in America may not readily accommodate efforts to foster the growth of specific industries.

These opposing viewpoints suggest some basic considerations for choosing an industrial policy strategy:

- As a general principle, government policies should be designed to improve social welfare. Productivity growth is not the only measure of social welfare, and policies that focus solely on productivity growth may be less desirable

---

9/ Issues of this sort are discussed in Robert A. Leone and Stephen Bradley, "Toward an Effective Industrial Policy" (Harvard Business School, July 31, 1980).

than those that attempt to allocate resources efficiently across all industries in a manner consistent with social preferences.

- When government policies themselves are the cause of industrial distortions that retard productivity growth, it might be well to modify the policies. For example, the effort to achieve a cleaner environment might explore alternative ways of sharing the cost. Also in some cases, antitrust laws might be modified to allow businesses to cooperate in the development of new technologies. Tax policies that stimulate the demand for housing and health care could be reevaluated. Finally, trade policies that protect inefficient and low-productivity domestic industries could be reassessed, and other ways of assisting their workers could be explored.

- When imperfections in labor, product, or financial markets cause structural distortions, government could undertake to correct or offset these imperfections. Policies of this sort may not be effective, however, if policy actions do not reflect a clear understanding of the underlying problems.

- Industry-specific growth policies may be justifiable when other types of government policies cannot achieve the productivity objectives in a reasonable amount of time. In the United States, however, such policies would require more cooperation than now exists among business, labor, and government. Foreign experience shows the importance of developing a consensus among these groups for deciding upon the industries to be targeted for special treatment. Without it, the "planning" approach to industrial development is unlikely to succeed.

APPENDIX. INTERNATIONAL COMPARISON OF PRODUCTIVITY LEVELS AND GROWTH RATES

TABLE A.1 REAL GROSS DOMESTIC PRODUCT PER EMPLOYED PERSON IN LEADING INDUSTRIAL COUNTRIES BASED ON INTERNATIONAL PRICE WEIGHTS, 1950-1979 (United States = 100)

Country	1950	1960	1970	1979 a/
Belgium	55.6	59.7	73.7	90.7
Canada	84.5	89.5	92.6	94.8
France	42.4	53.7	71.0	88.8
Germany b/	37.3	56.0	71.3	87.9
Italy	25.5	34.9	53.4	59.5
Japan	15.5	23.8	48.7	66.4
Netherlands c/	55.4	62.7	76.1	93.0
United Kingdom	53.4	53.7	57.6	59.5

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data.

a/ Data are based on preliminary estimates.

b/ Excluding the Saar and West Berlin in 1950.

c/ Employment figures for the Netherlands are Dutch estimates of work-years of employed persons.

TABLE A.2 AVERAGE ANNUAL GROWTH IN GROSS DOMESTIC PRODUCT PER EMPLOYED PERSON IN LEADING INDUSTRIAL COUNTRIES, 1960-1979 (Percent change per year)

Country	1960 to 1979 a/	1960 to 1970	1970 to 1979 a/
United States	1.5	2.0	1.1
Belgium	3.7	4.2	3.2
Canada	1.9	2.3	1.3
France	4.2	4.9	3.4
Germany	3.9	4.4	3.4
Italy	4.6	6.4	2.6
Japan	7.1	9.5	4.5
Netherlands b/	3.6	4.0	3.3
United Kingdom	2.4	2.7	2.0

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data.

a/ Data for 1979 are preliminary.

b/ See Table A.1.

TABLE A.3 AVERAGE ANNUAL RATES OF CHANGE IN OUTPUT PER HOUR IN MANUFACTURING IN LEADING INDUSTRIAL COUNTRIES, 1960 TO 1979

Country	1960-1979 a/	1960-1970	1970-1979 a/
United States	2.6	2.8	2.4
Belgium	6.8	6.4	7.3 b/
Canada	3.9	4.3	3.5
Denmark	5.6	6.9	5.3
France	5.5	5.8	5.1
Germany	5.4	5.5	5.2
Italy	6.1	7.1	5.0
Japan	8.1	10.8	5.2
Netherlands	6.7	7.1	6.2 b/
Sweden	5.3	6.8	3.7
United Kingdom	2.9	3.6	2.1

NOTE: Data relate to all employed persons in the United States and Canada; to all employees in the other countries.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

a/ Data for the latest year are preliminary.

b/ For Belgium and the Netherlands, data relate to period ending 1978.

○